ED 211
Educational Psychology

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Introductions

Please turn to 2–3 neighbors and share:

- Two true facts about yourselves
- One dream/aspiration related to learning/teaching

With the same neighbors, share:

- What do you hope to learn in this class?
- Share 3-5 words to describe how you feel about psychology in education.

Activity: Think-Pair-Share

- Question: What is the most powerful learning experience you've had?
- Steps:
- 1. Think individually (2 min)
- 2. Pair with neighbor (3 min)
- 3. Share highlights with class (5 min)

Teachers, Teaching, and Educational Psychology

- **What Is Good teaching?**
- **The Role of Educational Psychology**
- **Using Research To Understand and Improve Teaching**

An Introduction

- Learning and teaching today (the profile of students in the classrooms on p. 30)
  - Who are/will be the students in Turkish classrooms? (diversity in race, ethnicity, language, economic level, etc.)

  vs.
  - Who are/will be teachers? (teacher diversity?)

- Ss are more technologically literate than their teachers.
- What does learning and teaching mean? After COVID19? Today?
- What is the role of educational psychology?

What is learning? Teaching?

Defining learning

- Learning (n): the acquisition of knowledge or skills through study, experience, or being taught.

- “A persisting change in human performance or performance potential… [which] must come about as a result of the learner’s experience and interaction with the world.”
  From Psychology of Learning for Instruction by M. Driscoll

Defining teaching

- the occupation, profession, or work of a teacher.
- the concerted sharing of knowledge and experience.
- Usually organized within a discipline and, more generally, the provision of stimulus to the psychological and intellectual growth of a person by another person or artefact.
- Is **all learning** organized?

Reflection Question

Compare and contrast expert and novice teachers. Use examples from your experience that illustrate your comparisons and contrasts.

Art versus Science

- Teaching as a science: effective techniques
- Teaching as an art: reflective, inventive
- Teaching as art and science combined

Educational psychology

- A distinct discipline
- Its own theories, research methods, problems, and techniques.
- Educational psychologists do research on learning and teaching

WHY?

- work to improve educational policy and practice
- What happens when someone teaches something to someone else in some setting?

The Role of Educational Psychology

- The study of psychology in education
- Involves the application of psychological principles in educational settings.
  - Reinforcement, motivation….
- About understanding educational settings and their effects on learners and teachers within these settings

The Role of Educational Psychology

- Understanding and improvement of instruction
- What people think and do as they teach and learn
- Solving the everyday problems of education

Common Concerns

- Classroom discipline
- Motivating students/teachers?
- Accommodating differences
- Evaluating student work
- Dealing with parents/community

Introduction to Child Development and Education

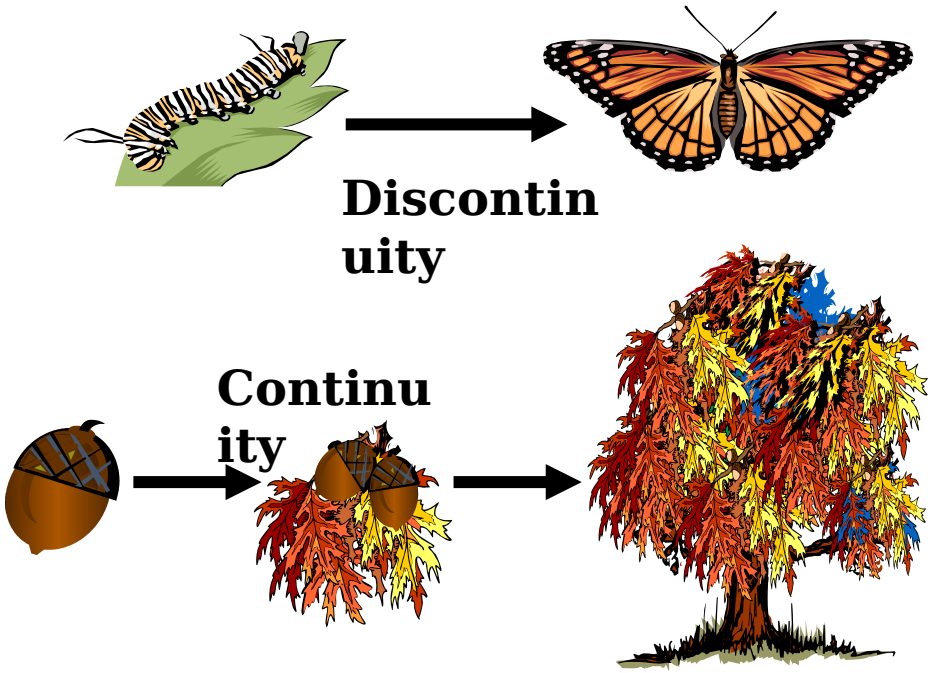
- The Great Debates about Human Development
- Research Methods in Child Development and Education

Nature versus Nurture

- What is the role of heredity and how does it compare with the role of environment on human development?
  - Nature: determined by biology
  - Nurture: determined by experiences
- Development is interaction between biological and enviromental componets (Lerner, 2002; Rutter, 2002a; Shonkoff and Philips, 2000)

Stages of Development versus Continuous Development

- Does development consist of a smooth progression (continuity-gradual change), or is it a series of abrupt shifts (discontinuity)?



Universals in Development versus Culture-Specific Developments

- Are differences in development across cultures simply variations on a universal developmental process?
  - OR:
- Does development take different paths dependent upon environmental context?

Answer is...

- Development is both biologically determined and a function of environment, there are both universals in development and culture-specific developments.

Why Educational Psychology Matters

•• Connects learning theories to teaching
•• Helps understand student behavior & motivation
•• Informs instructional strategies
•• Promotes inclusive education

Chapter 2:
Cognitive Development

OUTLINE

- A Definition of Development
- The Brain and Cognitive Development
- Piaget’s Theory of Cognitive Development
- Vygotsky’s Sociocultural Perspective
- Implications of Piaget’s and Vygotsky’s Theories for Teachers

ED 211, do not circulate. Restricted permission

Development: A definition

- Orderly, adaptive changes that occur in humans between conception and death and remain for long period of time
  - Not temporary change caused by brief illness, accident
- Physical development: Changes in the body structure/function over time
- Personal development: Changes in individual's personality
- Social development: Changes over time in ways of relating to others
- Cognitive development: Gradual orderly changes by which mental processes become more complex/sophisticated
- Maturation: Genetically programmed, naturally occurring changes over time (relatively unaffected by environment- e.g., much of physical development-others occur in relation with environment.)
- Nature vs Nurture: one of continuing 3 discussions in the field!

Nature

Genes and Hereditary Factors

physical appearance

personality characteristics

Nurture

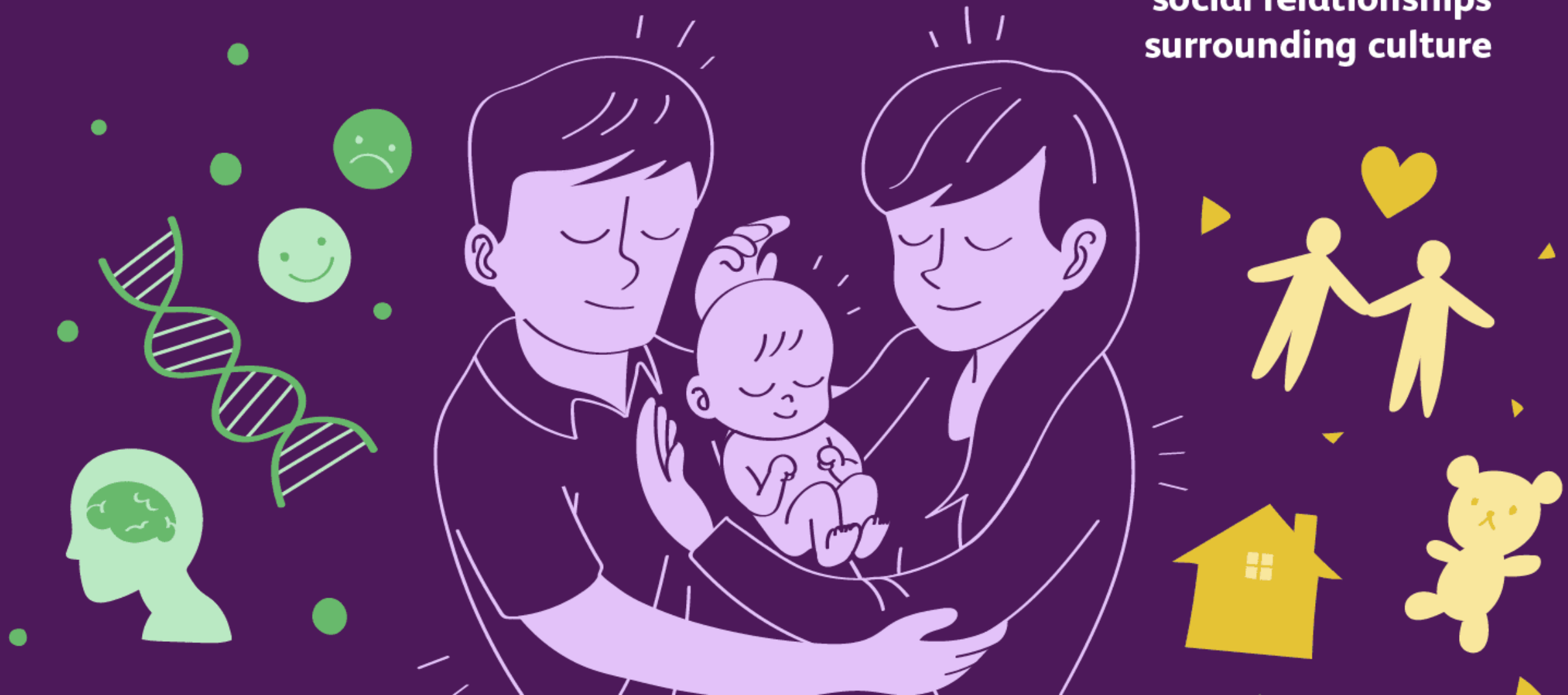
Environmental Variables

childhood experiences

how we were raised

social relationships

surrounding culture



NATURE VS NURTURE

If you talk about psychology with your friends, colleagues, or other people you meet, you might find yourself in the middle of a Nature vs Nurture debate.

MEANING

NATURE refers to genetics and all the factors that are inherited.

EXAMPLES

- The nature of the individual plays a big role.
- Nature has endowed her with beauty and intelligence.
- She had never seen the pettish side of his nature before.
- She was nicknamed Sunny because of her happy nature.
- Violence is abhorrent to his gentle nature.
- She trusted people. That was her nature.

MEANING

NURTURE refers to the variables of the environment: things you get from the world around you after you are born.

EXAMPLES

- The nurture is what shapes the individual's character.
- They feel nurture is of infinitely greater importance than nature.
- The antagonism between nature and nurture controls their fate.
- So our crying level may reflect more nature than nurture.
- The womb is the ultimate safe haven and the ultimate symbol of care and nurture.
- Is psychopathy due to nature or nurture?

There is a small trick that might help you never get these two words mixed up. Think of the word "nurture". It comes from the verb "to nurse", and one of its meanings is "to feed a baby at the breast". So, it'd only logical that "nurture" refers to everything that the environment, including how our parents raise us, define our personality.

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3Qs across Theories

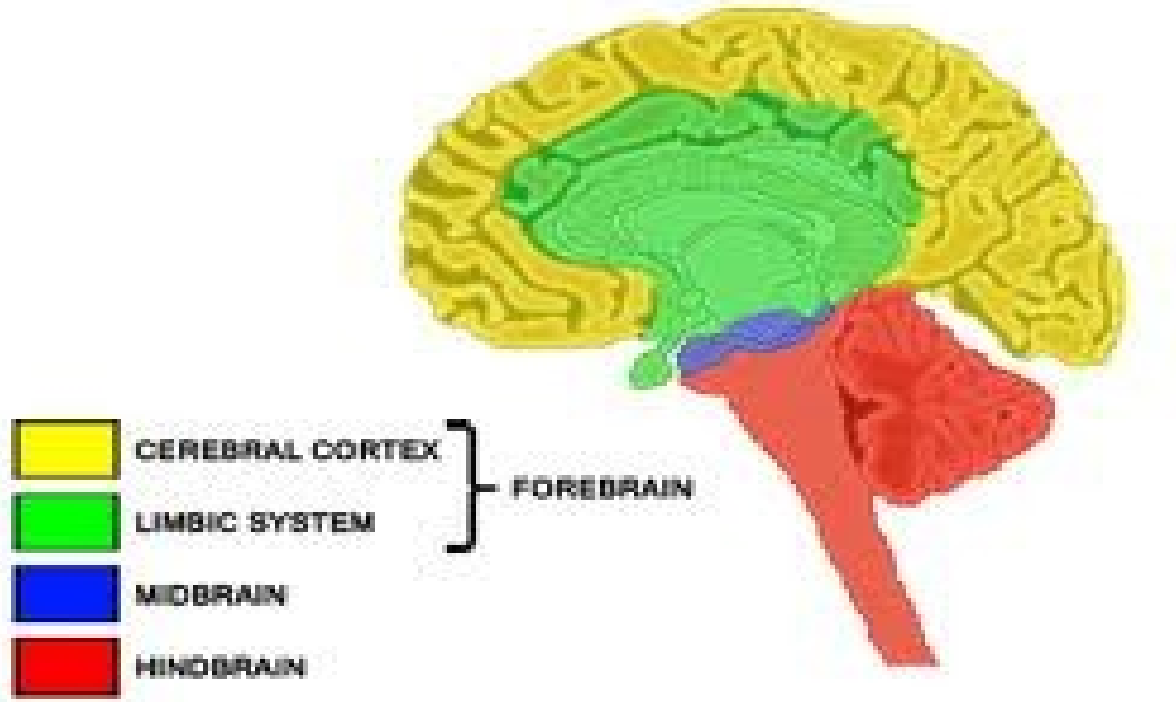
1. Nature v. nurture (heredity/biology v. environment/culture)
   - Which is more important in development?
   - Current views emphasize complex coactions of both
     - Heredity and environment shape, influence each other
2. Continuity v. discontinuity in development
   - Continuous, quantitative change compared to walking up a ramp to go higher; progress is steady
   - Discontinuous, qualitative change compared to walking up stairs; progress in stages (Piaget's theory, for example)
3. Critical v. sensitive periods
   - Critical time when specific abilities must develop (Freud)
   - Sensitive periods of readiness for certain experiences

General Principles of Development

General principles supported by almost all theorists:

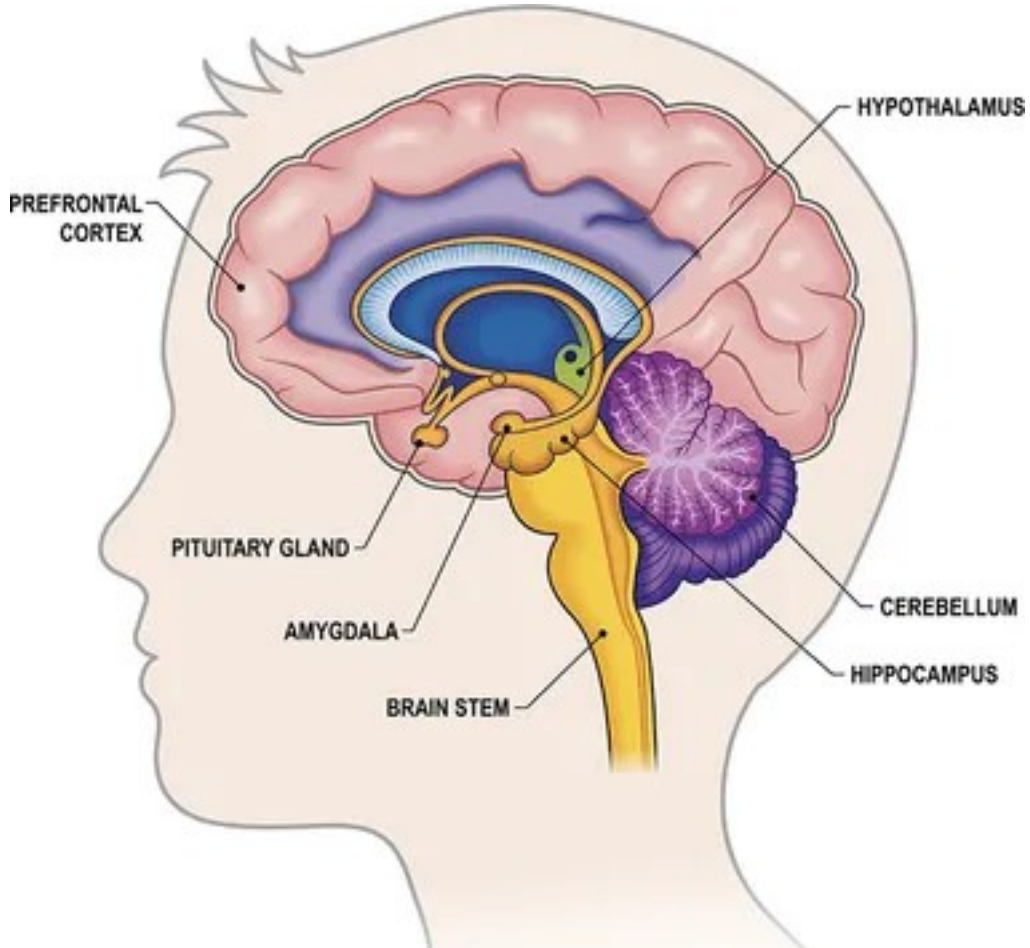
- People develop at different rates
  - Students of same age vary in size, maturity
- Development is relatively orderly
  - Abilities develop in logical order: Babble before talking
- Development takes place gradually
  - Not overnight, but over time

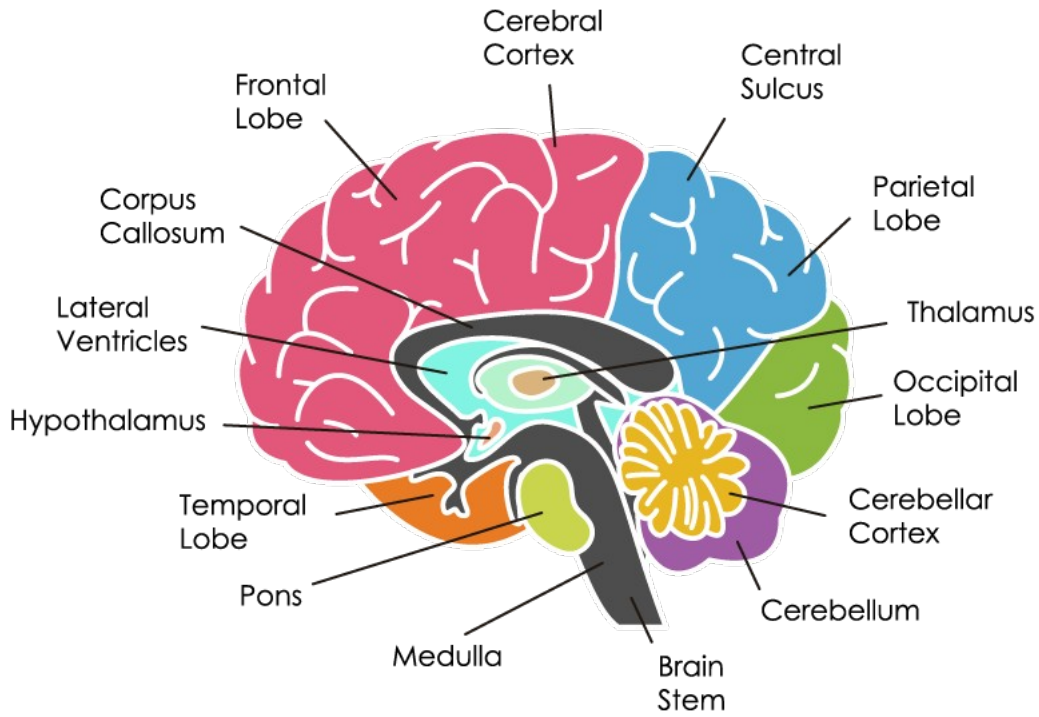
The Brain and Cognitive Development



What Are the Parts of the Brain and Their Functions?

- Regions
  - Cerebellum coordinates balance, skilled movements
  - Hippocampus recalls new information, recent events
  - Amygdala directs emotions
  - Thalamus involved in verbal information and the ability to learn
- Brain imaging techniques expand knowledge of brain
  - Functional magnetic resonance imaging (fMRI): Measure of changes taking place in brain during brain activity
  - Event-related potential (ERP): Assess electrical activity of the brain
  - Positron emission tomography (PET): Localizing, measuring brain activity


HYPOTHALAMUS
PREFRONTAL CORTEX
PITUITARY GLAND
AMYGDALA
BRAIN STEM
CEREBELLUM
HIPPOCAMPUS


Cerebral Cortex
Central Sulcus
Frontal Lobe
Parietal Lobe
Corpus Callosum
Thalamus
Lateral Ventricles
Occipital Lobe
Hypothalamus
Temporal Lobe
Cerebellar Cortex
Pons
Cerebellum
Medulla
Brain Stem

The Developing Brain: Neurons

- Neurons: Nerve cells; store and transmit information
  - Processing capacity of small computer in each neuron
  - Gray in color, called the brain’s gray matter
  - One-pound infant brain contains billions of neurons
- Neurogenesis: Production of new neurons
  - Continues into adulthood, especially in hippocampus
- Axons and dendrites: Arm/branch-like fibers on neurons
- Synapses: Spaces between neurons
  - Neurons release chemicals, sending electrical signals across synapses
- Synaptic plasticity: Brain’s dynamic tendency to remain adaptable/flexible

GET EXCITED ABOUT THE BRAIN!

The brain is a wonderful thing

100.000.000.000 neurons
infinite connection possibilities

Recommended videos:

- Human Brain: Major Structures and their Functions

https://www.youtube.com/watch?v=EeE7Fpg061I&ab_channel=medXclusiveLearning

- The Brain Explained: How the Brain Talks

https://www.youtube.com/watch?v=NbMylYg4lYw&ab_channel=Birkbeck%2CUniversityofLondon

- Neuroscience: The Neuron

https://www.youtube.com/watch?v=6qS83wD29PY&ab_channel=NeuroscientificallyChallenged

Putting It All Together: How the Brain Works

- All experiences sculpt the brain
- Brain always changing – plasticity
- Educational applications of neuroscience
  - Many misapplications of neuroscience to education
  - Can increase understanding of learning and development if applied correctly
  - Advances understanding about learning disabilities
  - Explains why some teaching strategies work effectively

Neuroscience, Learning, and Teaching

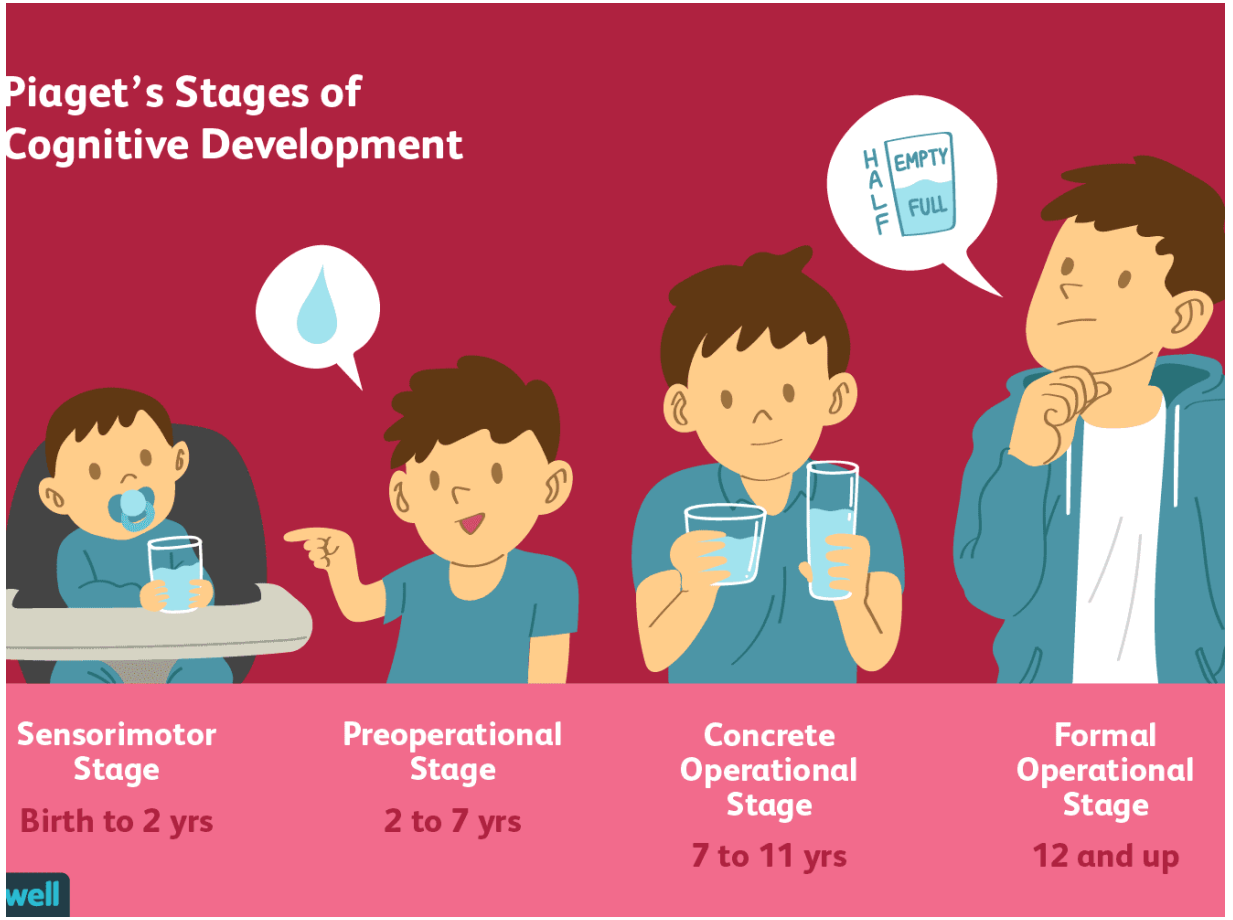
Truths debunk common myths about the brain (p. 68):

- You use all your brain (not only 10%)
- Learning to play musical instrument increases cognitive achievement (not listening to Mozart as children)
- Use both sides of brain (not “right brained,” “left brained”)
- Children world-wide can learn 2 languages at once
- Brains are changing all the time
- Most people recover well from minor brain injuries
- Physical exercise (not playing Sudoku) prevents decline
- Human brain not biggest (sperm whale brain 5X bigger -8kg)
- Heavy drinking of alcohol damages nerve ends (does not kill brain cells)
- Critical differences between adolescents’ and adults’ brains

Instruction and Brain Development

- Teaching can change organization and structure of brain
  - Helps rehabilitate stroke victims to regain functioning
  - Helps with adaptation in children’s brains when one hemisphere is removed
- Brain research can explain why strategies for teaching reading are effective
- Connections between brain, classroom teaching, and emotions and stress
  - Anxiety interferes with learning
  - Disinterest and lack of challenge affect learning
  - Learning improves when students learn emotional self-regulation

Piaget’s Theory of Cognitive Development



There Are Three Basic Components To Piaget's Cognitive Theory:

- Schemas (building blocks of knowledge).
- Adaptation processes that enable the transition from one stage to another (equilibrium, assimilation, and accommodation).

Piaget proposed four stages of cognitive development which reflect the increasing sophistication of children's thought:

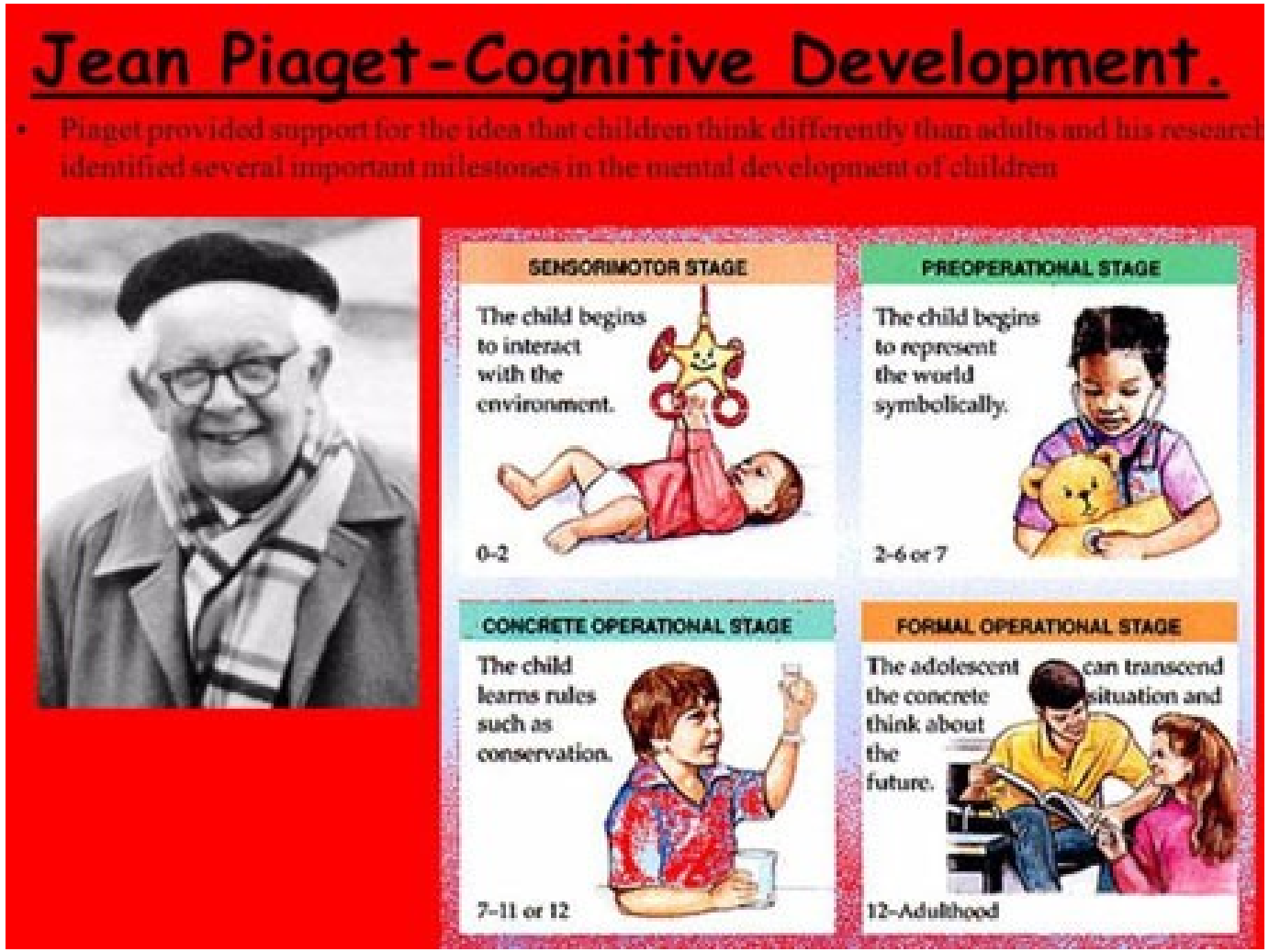
Table 2.2 p. 73:

1. Sensorimotor stage (birth to age 2)

2. Preoperational stage (from age 2 to age 7)

3. Concrete operational stage (from age 7 to age 11)

4. Formal operational stage (age 11+ – adolescence and adulthood)


Jean Piaget-Cognitive Development.
Piaget provided support for the idea that children think differently than adults and his researcl identified several important milestones in the mental development of children
SENSORIMOTOR STAGE
The child begins to interact with the environment.
0-2
PREOPERATIONAL STAGE
The child begins to represent the world symbolically.
2-6 or 7
CONCRETE OPERATIONAL STAGE
The child learns rules such as conservation.
7-11 or 12
FORMAL OPERATIONAL STAGE
The adolescent can transcend the concrete situation and think about the future.
12-Adulthood

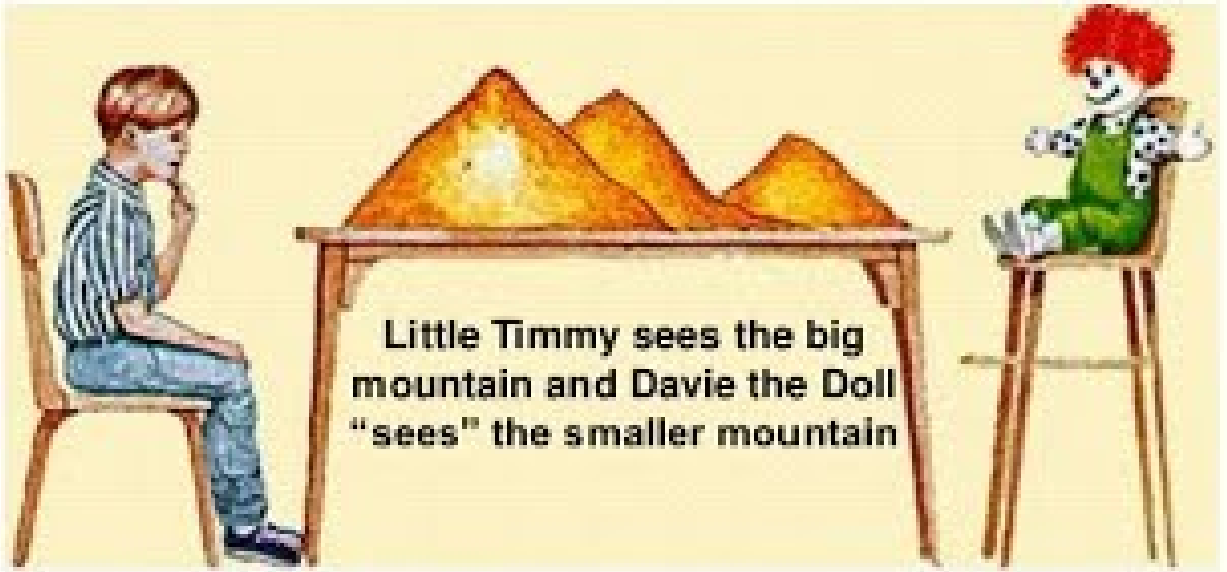
Piaget's Theory Differs From Others In Several Ways:

- It is concerned with children, rather than all learners.
- It focuses on **development**, rather than learning per se, so it does not address learning of information or specific behaviors.
- It proposes **discrete stages of development**, marked by qualitative differences, rather than a gradual increase in number and complexity of behaviors, concepts, ideas, etc.

Limitations of Piaget's Theory

- The problem with stages (maybe it is more continuous than they seem)
- Underestimates children's abilities (what if his questions were too difficult? Or his directions too confusing?)
- Overlooks the role of cultural and social context (differences across cultures?)

Three Mountain Test

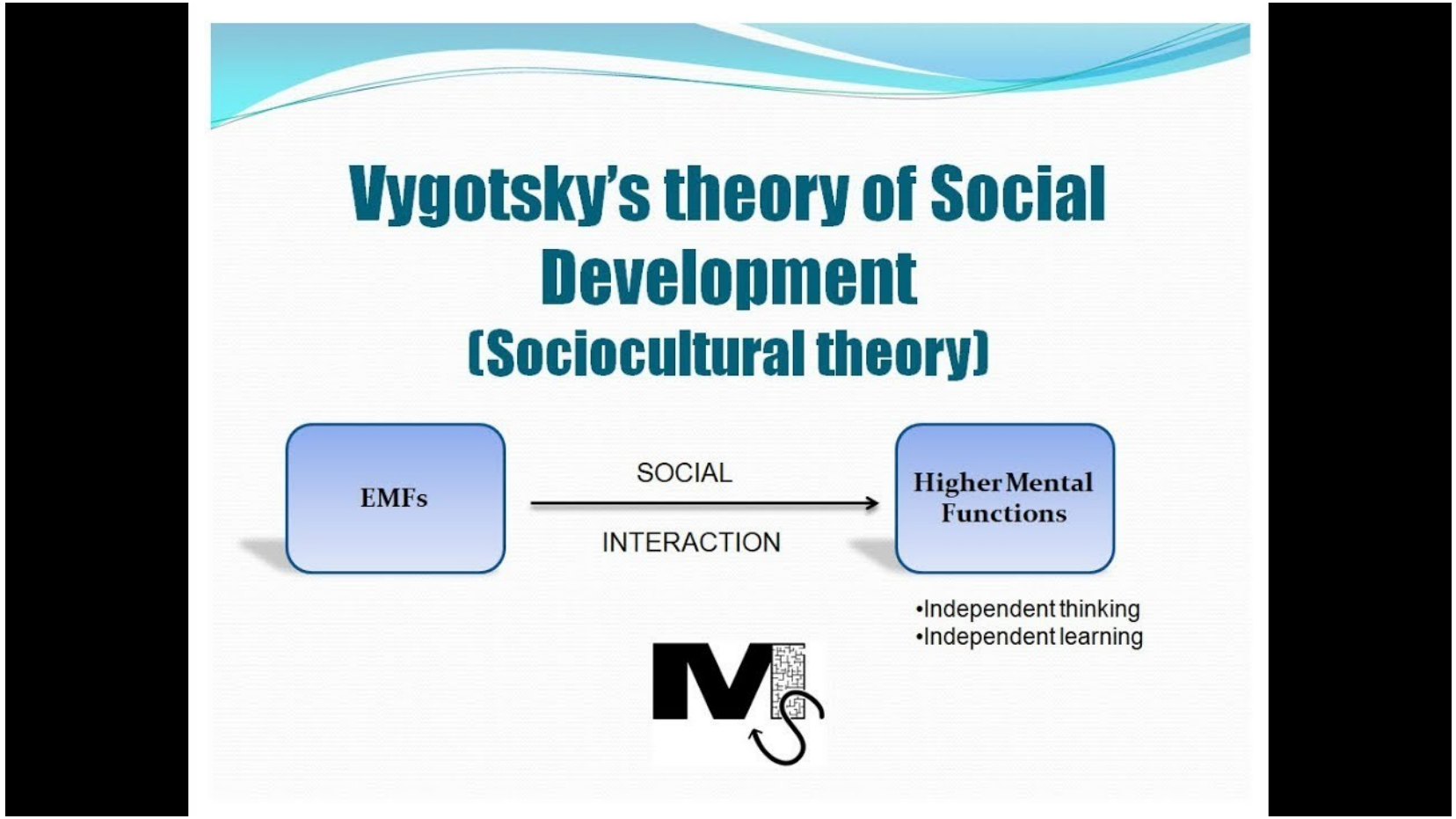


Piaget's "3 mountains" egocentrism test:

"Draw how the mountains would look from the doll's point of view."

Timmy's egocentrism prevents him from seeing Davie's perspective… Timmy would draw the big mountain

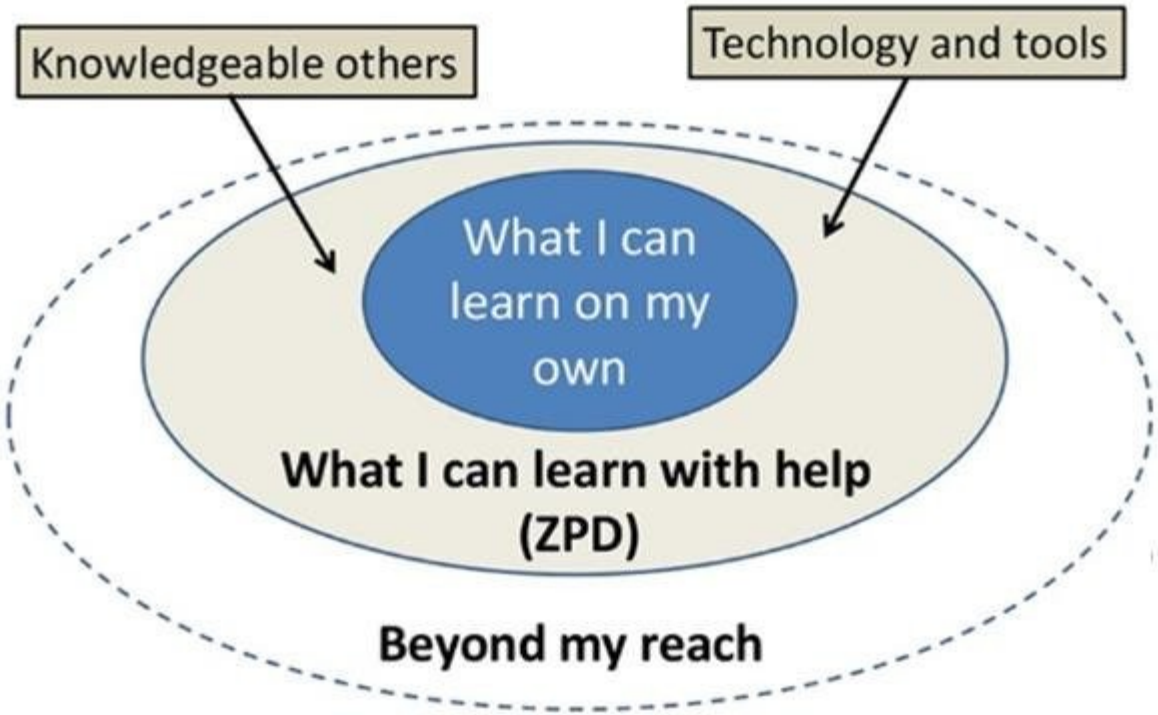
Vygotsky’s Sociocultural Perspective



Vygotsky’s Sociocultural Theory

- Learning as a social process and the origination of human intelligence in society or culture
- The potential for cognitive development is limited to a "zone of proximal development" (ZPD).
- Strategies for supporting the intellectual knowledge and skills of learners and facilitating intentional learning:
    - Collaborative learning,
    - discourse,
    - modelling, and
    - scaffolding

"zone of proximal development" (ZPD)



Vygotsky’s Sociocultural Theory: Limitations

- Consists mostly of general ideas.
- Could not elaborate on his ideas because died too early.
- His students’ works were suppressed by Stalin.

Vygotsky vs. Piaget

(Source: https://www.simplypsychology.org/vygotsky.html)

1. Places more emphasis on **culture** affecting cognitive development. (Cognitive development varies across cultures)

2. Places considerably more emphasis on **social factors** contributing to cognitive development. (Cognitive development stems from social interactions from guided learning within the zone of proximal development as children and their partner's co-construct knowledge.)

1. This contradicts Piaget's view of **universal stages and content** of development (Vygotsky does not refer to stages in the way that Piaget does. Piaget states cognitive development is mostly universal across cultures).
2. Cognitive development stems largely from **independent explorations** in which children construct knowledge of their own.

Vygotsky vs. Piaget (Cont’d)

(Source: https://www.simplypsychology.org/vygotsky.html)

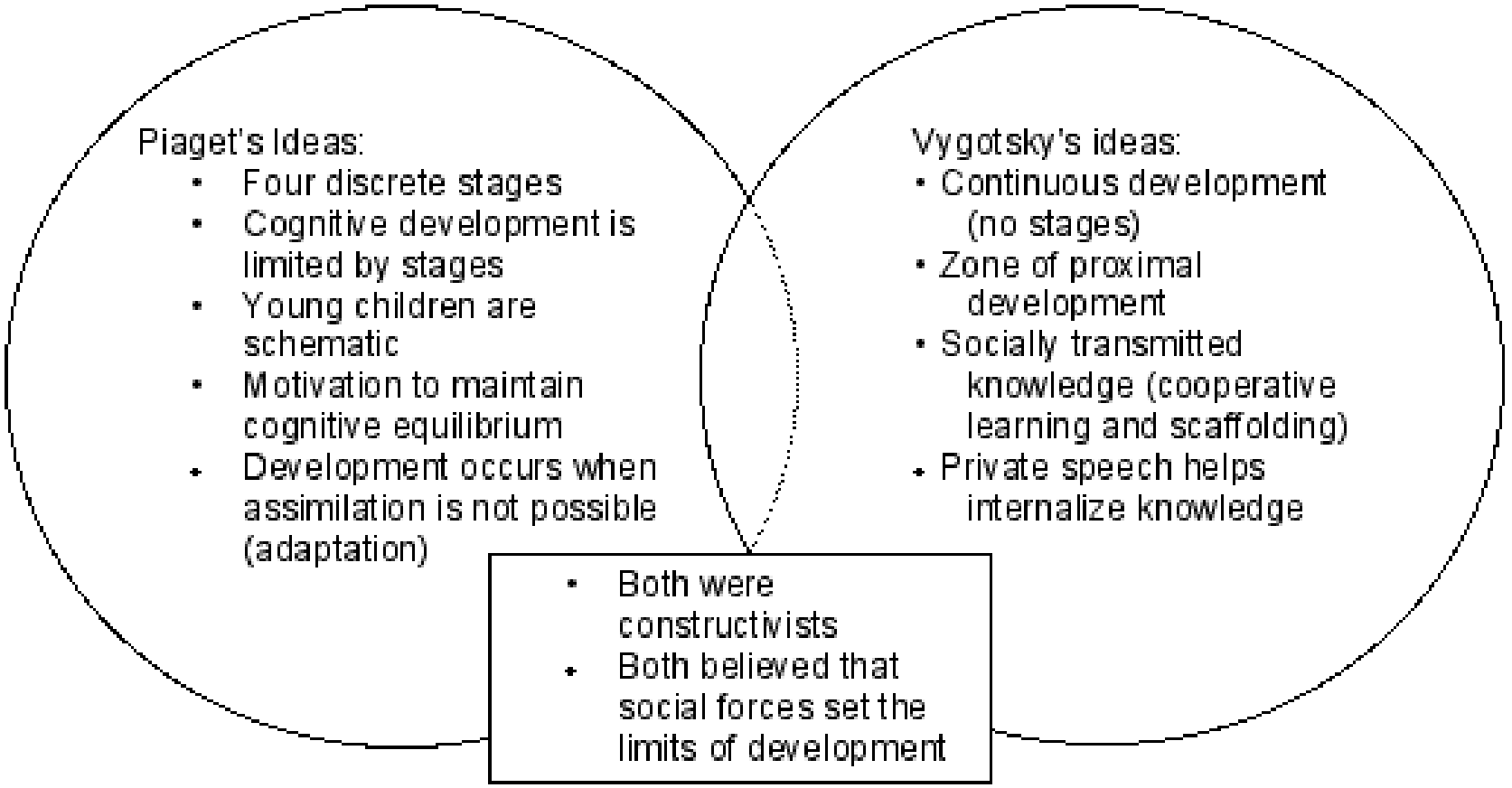
3. Places more (and different) emphasis on the **role of language** in cognitive development. For Vygotsky, thought and language are initially separate systems from the beginning of life, merging at around three years of age, producing verbal thought (inner speech). For Vygotsky, cognitive development results from an **internalization of language**.

4. **Adults** are an important source of cognitive development. Adults transmit their culture's tools of intellectual adaptation that children internalize.

3. **Language depends on thought** for its development (i.e., thought comes before language).

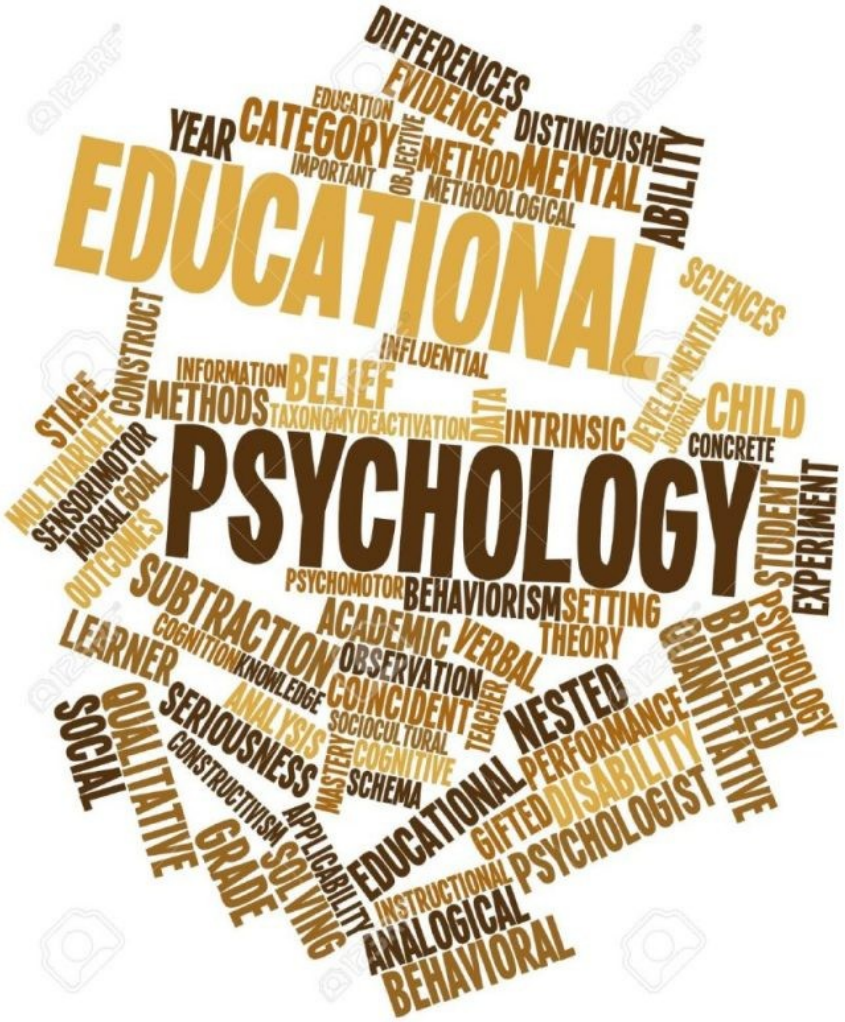
4. Emphasizes the importance of peers, as **peer interaction** promotes social perspective taking.

Vygotsky vs. Piaget


Piaget's Ideas:
• Four discrete stages
• Cognitive development is limited by stages
• Young children are schematic
• Motivation to maintain cognitive equilibrium
• Development occurs when assimilation is not possible (adaptation)
Vygotsky's ideas:
• Continuous development (no stages)
• Zone of proximal development
• Socially transmitted knowledge (cooperative learning and scaffolding)
• Private speech helps internalize knowledge
• Both were constructivists
• Both believed that social forces set the limits of development

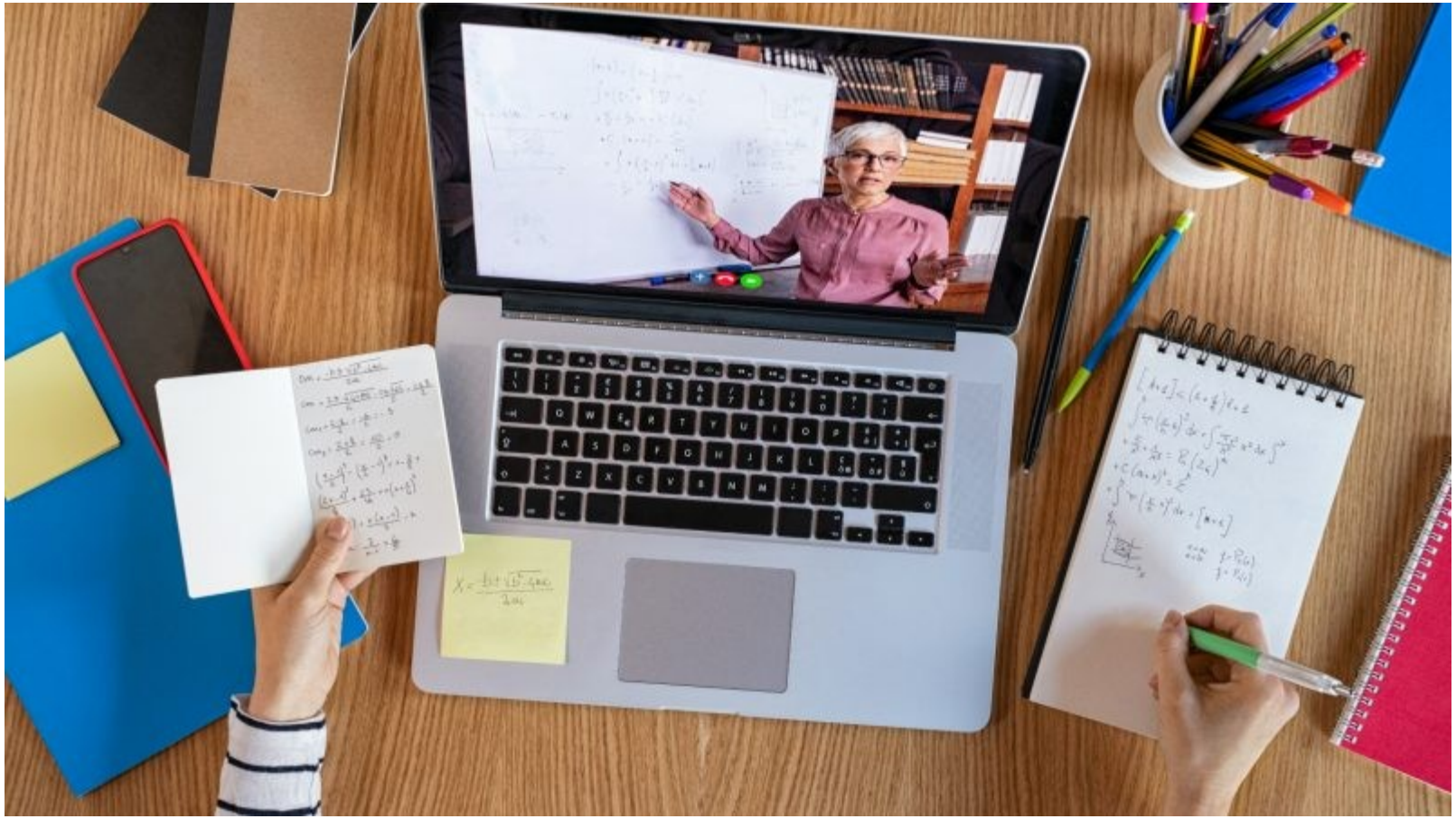
Review

- Learning
- Teaching
- Educational psychology
- Development
- Cognitive Development



Week1: Revision&Discussion Session

Pair work: Considering all recent developments, (re)define learning and teaching.



Revision:

Watch:

- **Video: Zone of Proximal Development and Scaffolding EXPLAINED! (12:14’)**
- **https://www.youtube.com/watch?v=aofSkZsy6IY&ab_channel=SharpCookie**

Vygotsky’s Sociocultural Theory

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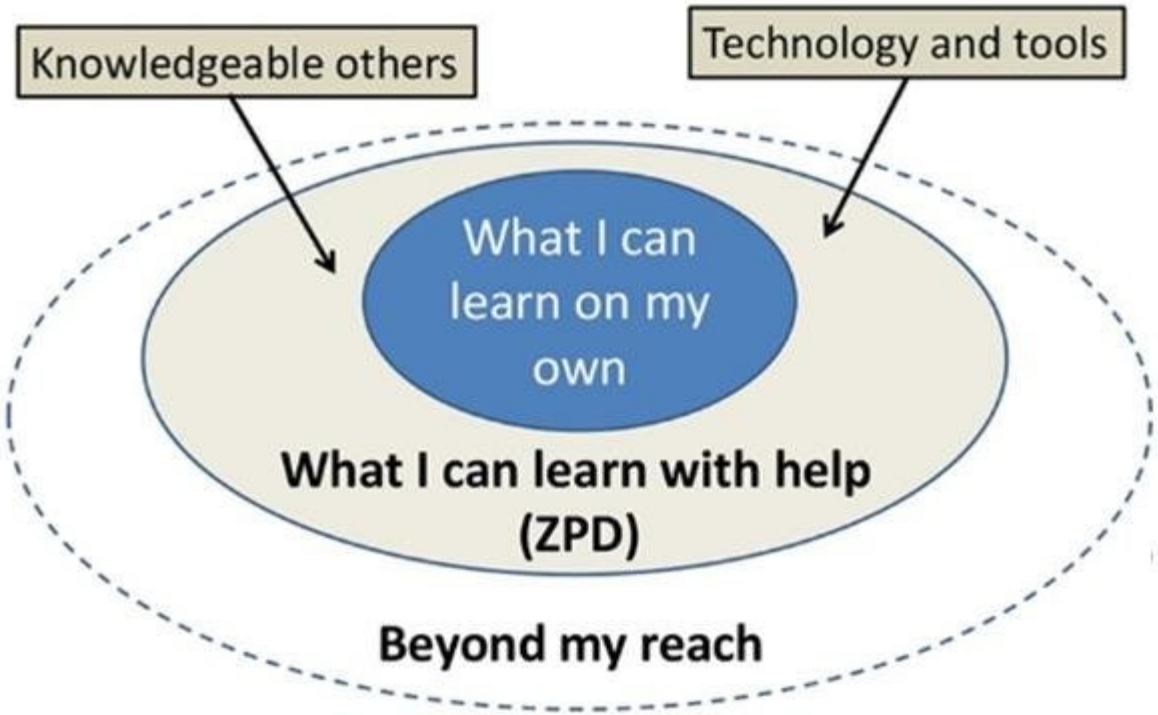
"zone of proximal development" (ZPD)



Watch&Think

- http://www.youtube.com/watch?v=YtLEWVu815o

OR

https://www.youtube.com/watch?v=gnArvcWaH6I&ab_channel=munakatay

-

- “Why are some of the children in the clip unable to perform the various conservation tasks demonstrated in the video?”
- “How might the child have responded if you had asked her to count the coins over again? How would Vygotsky respond to this question?”

Answers

1. the role of perceptual centration—that the preoperational children were focusing on only the **most salient feature of the situation** (e.g., height of the liquid in the glass, the length of the lines, etc.).
2. Vygotsky would have a different perspective, and point out that asking the child to count the coins again is an example of a ***cognitive tool*** and a form of ***scaffolding***.

Zone of Proximal Development: An example

- http://www.youtube.com/watch?v=aLFQYbjYsso
- https://www.youtube.com/watch?v=Zu-rr2PRNkE&ab_channel=drmpcfl

- an example of the *zone of proximal development*
- How does the clip illustrate other aspects of sociocultural theory?

Zone of Proximal Development: An example

- http://www.youtube.com/watch?v=aLFQYbjYsso
- an example of the *zone of proximal development*
- How does the clip illustrates other aspects of sociocultural theory?

(Possible answers are scaffolding, social source of thinking, etc.)

Group Discussion

- What are the implications for teaching students inside the zone of proximal development on student motivation and efficacy?

Lessons for Teachers: General Principles

1. Multiple ways to teach and learn a skill
2. Learners have preferred modes of processing
3. Active environments support cognitive development
4. Some learning disorders have neurological basis
5. Brain can change over time with teaching, reteaching
6. Life experiences help students construct knowledge
7. New information should be linked to prior knowledge
8. Forming strong connections requires revisiting information
9. Large, general concepts should be emphasized
10. Stories should be used in teaching
11. Students must take responsibility for learning

Suggestion for further study

- Piaget's Theory of Cognitive Development

https://www.youtube.com/watch?v=IhcgYgx7aAA&ab_channel=Sprouts

- Vygotsky's Theory of Cognitive Development: How Relationships Increase Learning

https://www.youtube.com/watch?v=8I2hrSRbmHE&ab_channel=Sprouts

Weekly Qs :

1. Discuss how the ideas of Piaget and Vygotsky influence current educational research and practice
2. Summarize Piaget’s theory of cognitive development, including criticisms of his theory.
3. Summarize Vygotsky’s theory of development, including criticisms of his theory.

Read &Answer

- Read “Place Definitely Matters.”
- How does environment influence development and learning?